CLAIMS

1. Strapping machine comprising a strap extension, retrieval and pulling unit (13) comprising in turn a powered main wheel (18) around which the strap (12) winds partially to be moved in both directions and characterized in that two selectable mechanisms are provided for transmission of movement to the main wheel with the first mechanism causing rotation of the main wheel (18) at a first speed and an auxiliary traction wheel (21) which is pressed against the main wheel with interposition of the strap near the input zone of the strap on the main wheel to effect pulling of the strap and the second mechanism causing rotation in both directions of the main wheel (18) at a second speed greater than the first to effect extension and retrieval of the strap while the auxiliary traction wheel (21) is at some distance from the main wheel with a control device (50) operating alternately the first or second mechanism to realize in rapid succession extension, retrieval and pulling of the strap.

2. Machine in accordance with claim 1 characterized in that the first mechanism comprises a lever (24) on which is mounted the auxiliary pulling wheel (21) and which is movable on command of moving means (27, 28) between a first non-operational position in which the auxiliary pulling wheel (21) is moved away from the main wheel (18) and a second operational position in which the auxiliary pulling wheel (21) is pressed against the main wheel (18).

3. Machine in accordance with claim 2 characterized in that the auxiliary pulling wheel (21) is connected to a motion transmission for its rotation and has a shaft connected to a first gear (32) which engages in a rotation gear (30) of the main wheel (18) when the lever (24) is moved to the operational position.

4. Machine in accordance with claim 3 characterized in that the motion transmission of the auxiliary pulling wheel (21) comprises a second gear (33) connected to the shaft of the auxiliary wheel (21) and which engages in a powered gear (34).

5. Machine in accordance with claim 4 characterized in that the first pair made up of the first gear (32) of the auxiliary wheel and the gear (30) for rotation of the main wheel has a module of the teeth which is lower than the module of the teeth of the second pair made up of the second gear (33) of the auxiliary wheel and the powered gear (34) so as to hold the teeth of the second pair in contact even when the lever is moved into its non-operational position.

6. Machine in accordance with claim 3 characterized in that the lever handling means comprise a cam mechanism (27) for thrusting the lever towards its operational position with predetermined adjustable force.

7. Machine in accordance with claim 6 characterized in that the lever handling means also comprise an electromagnet device (28) for effecting a first partial movement from the non-operational position towards the operational position until engagement of the teeth of the

first gear (32) in the teeth of the rotation gear (30) of the main wheel.

8. Machine in accordance with claim 7 characterized in that the control device (50) commands in sequence first the electromagnetic device to effect the engagement movement of the teeth of the first gear (32) in the teeth of the rotation gear (30) of the main wheel and then the cam mechanism (27) to press the auxiliary pulling wheel (21) against the main wheel (18) with predetermined force.

9. Machine in accordance with claim 6 characterized in that the second mechanism comprises two gears arranged in series with one of the two gears (41, 42) engaging in a rotation gear (30) of the main wheel and with the two gears being powered through respective clutches (43, 44) engageable on command in such a manner as to cause rotation of the main wheel in one direction or the other depending on which clutch is engaged.

10. Machine in accordance with claim 1 characterized in that it comprises another auxiliary wheel (22) which presses the strap with predetermined force against the main wheel (18) in a position near the outlet of the strap from the main wheel in such a manner as to produce a desired traction on the strap during the extension step.

11. Machine in accordance with claim 1 characterized in that it comprises another intermediate auxiliary wheel (23) which presses the strap with predetermined force against the main wheel (18) in an intermediate position along the strap winding path on the main wheel in such a manner as to produce a desired traction on the strap during the

retrieval step.

12. Machine in accordance with claim 11 characterized in that the intermediate auxiliary wheel (23) has a stop sensor which signals to the control device (50) stopping of the wheel caused by slipping of the strap on the main wheel.